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ABSTRACT

In 1995, Johnson County Community College (JCCC), in Kansas, conducted a study to estimate the economic benefit contributed by the college to the Johnson County economy for 1993-94. Following a model developed by J. G. Ryan, direct economic impact was assessed by examining institutional expenditures, expenditures by college employees, and expenditures by JCCC students in Johnson County. In addition, indirect economic impact was assessed through the use of a mathematical multiplier applied to the direct impact indicators to account for additional business volume generated through re-spending of the direct expenditures. Results of the study included the following: (1) the direct economic impact from the institution, employees, and students amounted to $64,809,383; (2) indirect economic impact determined through the multiplier was calculated at an additional $64,809,383, resulting in a total tangible economic impact of $129,618,766; (3) in 1993-94, JCCC employed 735 full-time individuals, while an additional 4,536 full-time jobs in the County were attributed to college's economic impact; (4) total taxpayer investment in JCCC in 1993-94 fiscal year was $43,542,194; and (5) for every dollar spent by taxpayers in support of JCCC, $2.98 was returned to the local economy, a return investment of nearly 3 to 1. (HAA)

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THE ECONOMIC IMPACT OF JOHNSON COUNTY COMMUNITY COLLEGE ON JOHNSON COUNTY 1993 - 94

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TABLE OF CONTENTS

Page

Executive Summary 1

Introduction 3

Methodology 5

The Model 5

The Multiplier 7

Conservative Nature of Study 7

Major Findings 9

Tangible Economic Impact 9

Full-Time Jobs Related to Johnson County Community College 11

Return on Taxpayer Investment 11

Summary 12

Appendix A 13

Introduction 13

Methodology 13

The Economic Impact Model 13

Definitions 14

Full-Time Jobs Related to Institutional Spending 15

Appendix B 16

Economic Impact Calculation Form 16

Bibliography 21

LIST OF FIGURES

Page

Figure 1: Basic Components of an Economic Impact Model 6

Figure 2: Total Tangible Economic Impact of JCCC on Johnson County 10

Figure 3: Return on Taxpayer Investment 11

EXECUTIVE SUMMARY

The purpose of this study was to update previous (1985, 1991) estimates of the economic benefit that Johnson County Community College (JCCC) contributes to its local and regional economies. This study was based on a short-cut economic impact model for community colleges developed by G. J. Ryan in the early 1990's. The results of this study follow.

* The direct tangible economic impact of JCCC on the Johnson County economy is based on three major sets of expenditures generated by the college: institutional, student, and employee expenditures. These three components amounted to a total of $64,809,383.

* In addition to direct expenditures, indirect economic benefits may be calculated by using a multiplier to estimate increased business volume generated when the initial expenditures are partially recycled within the local economy. In 1993-94 this indirect economic impact amounted to an additional $64,809,383, resulting in a total tangible economic impact of $129,618,766.

* In fiscal 1993-94 JCCC employed 735 individuals in full-time jobs. An estimated 4,536 additional full-time jobs can be attributed to JCCC through its direct and indirect economic activity.

* Total taxpayer investment in JCCC in 1993-94 fiscal year was $43,542,194. Thus, as a result of the college's total tangible economic contribution to the county, for every dollar spent by taxpayers in support of Johnson County Community College, $2.98 was returned to the local economy, a return on investment of nearly 3 to 1.

Johnson County Community College (JCCC) plays a prominent role in its local service area by providing educational opportunities, promoting economic development, and providing cultural enrichment for the citizens of Johnson County. As a result of their experiences at JCCC, students obtain jobs, enhance professional skills, transfer to senior level colleges and universities, and acquire knowledge that enriches every aspect of their lives. Along with serving individual students, JCCC provides technical training for regional businesses and industries, economic development for both businesses and government, and cultural events such as plays, art exhibitions and lectures for area residents.

In addition to these educational and community service benefits, JCCC also provides major economic benefits to the local economy. Some of these benefits are significant but impossible to measure--for instance, it is nearly impossible to place a dollar value on the economic benefit derived from having a trained and educated workforce available for local businesses or the value of the drawing power and contribution to a community's economic development resulting from the existence of a college or university in the community. Nonetheless, many of the economic benefits provided by JCCC to the local community are tangible, and their value is possible to estimate. The college provides jobs, its employees and students consume goods and services, own property, and invest in the community. Dollars are circulated throughout the local economy through college expenditures, purchases of goods and services, salary payments, and capital construction. These dollars in turn stimulate the local economy leading to new jobs and additional spending. In short, JCCC has a significant economic impact upon its local service area. Measuring that impact is the purpose of this study.

In 1990, the Kansas City Regional Council for Higher Education (KCRCHE) undertook a study to determine the economic impact of higher education on the Kansas City Metropolitan area for fiscal 1988-89. As a component of this larger study, a study measuring the economic impact of JCCC on the metropolitan area was also conducted (Seybert, 1991).

In the fall of 1988, JCCC had a headcount enrollment of 11,164 credit students. Five years later, fall 1993 headcount enrollment was 15,353, a 38% increase. This growth in enrollment coupled with the college's overall increase in employees, programs, physical space, and the upcoming North Central reaccreditation process, makes it an appropriate time to revisit the college's economic impact on the local economy.

Since the early 1970's, numerous studies have been conducted to estimate the economic impact that institutions of higher education have on the communities in which they are located. Most studies use the economic impact model developed by Caffrey and Isaacs in 1971 under the sponsorship of the American Council on Education (ACE).

However, the Caffrey and Isaacs model has several shortcomings in terms of estimating the economic impact of the wide range of postsecondary institutions. A study conducted by G.J. Ryan in 1981 found three significant problems with strict adherence to the Caffrey and Isaacs model. First, Ryan found that several of the economic estimates presented by Caffrey and Isaacs were either inappropriate or only marginally appropriate for use by community colleges. Secondly, much of the data in the Caffrey and Isaacs model is collected via surveys of faculty and students. The surveys are difficult to adapt to a community college, response rates, especially among students, are too low to yield reliable information, and the development and implementation of the surveys is a time-consuming task. Finally, Caffrey & Isaacs used a retail gravity model. Ryan found that this presented three major problems for community colleges: the inherent mathematical complexity of the concepts, the difficulty in obtaining appropriate retail sales data; and the difficulty in operationalizing a "sales area".

For these reasons, Ryan developed a derivative version of the Caffrey and Isaacs model which was implemented in a statewide study of the community colleges in New Jersey. The Ryan-New Jersey model has subsequently been used to determine the economic impact of the community colleges in several other states. It was this Ryan-New Jersey model that was chosen as the model for the 1988-89 KCRCHE economic impact study. In 1992, Ryan further refined this model to a "short cut" model presented in a paper at the National Council for Resource Development. This model uses data sets to substitute for surveys, easily available nationally produced data to substitute for the retail gravity model, and a conservative multiplier. Thus the Ryan short-cut model was chosen for use in determining the economic impact of Johnson County Community College on Johnson County.

The Model

The model used in this study includes three major components of the estimated direct economic impact of JCCC on Johnson County:

1. Direct JCCC expenditures in Johnson County
2. Direct expenditures of JCCC employees in Johnson County
3. Direct expenditures of JCCC students in Johnson County

In addition to the direct economic impact of these expenditures, the model assumes that the indirect economic impact resulting from the additional business volume generated by these direct expenditures can be estimated by a multiplier that depends upon the size of the geographical area of interest--in this case, a county. Thus the basic formula of the model used in this study is as follows:

Total Johnson County expenditures by the institution
Plus
Total Johnson County expenditures by employees
Plus
Total Johnson County expenditures by students
Times
A multiplier (2.00 for Johnson County)
to account for additional business volume generated
Equals
Total Economic Impact

In addition, the model also allows calculation of the number of full-time jobs which can be attributed to the economic activity generated by the college.

Figure 1 depicts the major components of this model.

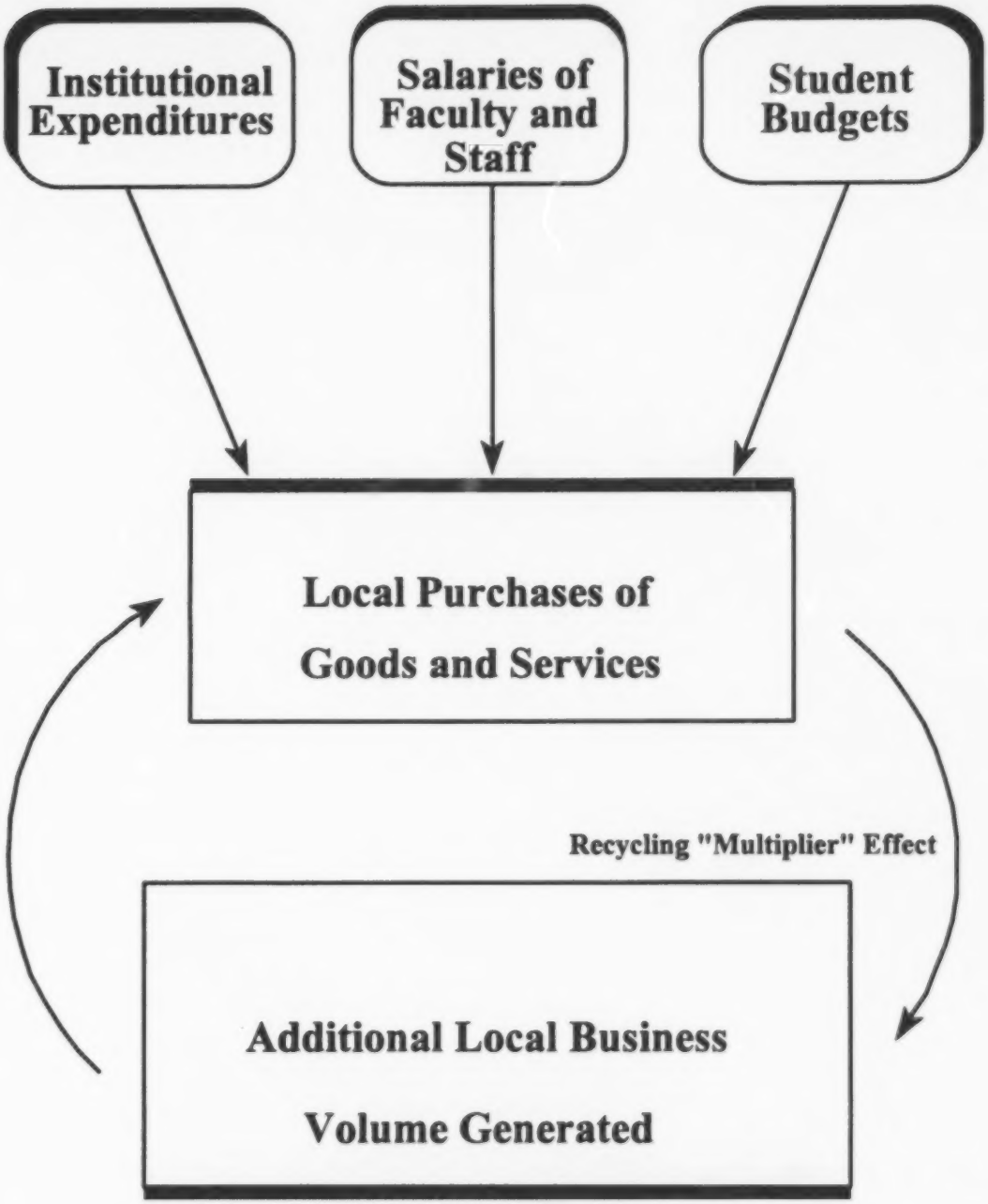

Figure 1. Basic Components of An Economic Impact Model

The Multiplier

The multiplier is an indispensable feature of all economic impact models. It is used to estimate the indirect business volume that is generated as a result of direct expenditures made into the economy of a specified geographical area. It is a key concept because its effect may constitute fifty percent or more of the total economic impact calculated by such models.

The following scenario explains the concept of the multiplier. For each dollar of initial spending in the county's economy, a portion is respent within the county by businesses and individuals for goods and services from other county businesses and individuals. The balance is removed from the economy by taxes, savings, and spending for goods and services originating from outside the county. But this is only the first round of transactions. The income accruing to county residents from this round of transactions is partially respent within the county's economy. Again, some is saved, some is paid out in taxes, and some is spent outside the county. This recycling process continues with diminishing increments at each cycle. Eventually the ratio of total spending to initial, direct expenditures can be estimated to be approximately two to one.

Thus, the multiplier represents the percent of each dollar spent in the local business economy which is then respent within the business community in successive rounds of spending.

Other economic impact studies concerned with geographical areas the size of counties use multipliers ranging from 1.9 to 3.0. Similarly, studies with areas the size of states use multipliers which range up to 4.0. Since this study employs only one county, Johnson County, the study used a very conservative multiplier of 2.0.

Conservative Nature of the Study

In addition to the choice of a conservative multiplier, this particular study, and the Ryan short-cut model in general, was constructed in such a way as to give a conservative estimate of the economic impact of Johnson County Community College.

Specifically, the model used in this study estimates only four major components of an institution's tangible economic impact: the economic impact of the direct expenditures of the institution, the direct expenditures of employees, the direct expenditures of college students, and the indirect business volume generated by these expenditures.

This model does not attempt to measure the economic impact of lesser but significant components, such as the expansion of local banks' credit base by the college-related deposits, increases in sales and property taxes collected by local governments due to college-related expenditures, employee's investments in local property, and numerous other tangible but difficult to measure impacts. Nor does this model take into consideration the economic impact on Johnson County from the Burlington Northern program at the college. The partnership between Burlington Northern Railroad and Johnson County Community College began in 1986. The

training facility budget exceeds $20,000,000. Over 12,000 railroad employees come to the college annually for training; those students comprise 20,500 student weeks of training which equates to 110,000 room nights for local hotels and motels. When the 2.0 multiplier is applied to the budget for the BN facility, over $40,000,000 is added to the local economy. Even if travel expenditures are discounted, the impact of the Burlington Northern program on the economy of Johnson County is very substantial. However, because of the special nature of the Burlington Northern program and facility, their economic contribution to the college and the county are not included in the results that follow, rendering those results even more conservative than is ordinarily the case.

In addition, full-time student expenditures were estimated using a combination of federal financial aid guidelines. For full-time students under the age of 25, the most conservative figures available (the federal financial aid guidelines for a dependent student living at home) were used. For full-time students 25 years of age and over, the financial aid figures for students living in an apartment were used. Part-time student expenditures were estimated including only those for books and supplies and transportation to and from classes.

Thus, both the nature of the model and the parameters of the methodology employed assured that estimates made of the tangible economic impact of Johnson County Community college on Johnson County were conservative.

Tangible Economic Impact

The economic impact of Johnson County Community College on the economy of the Johnson County area in 1993-94 was estimated to be:

* Institutional Expenditures	$ 7,560,536
* Employees' Expenditures	$ 8,223,024
* Students' Expenditures	$ 49,025,823
* Total Direct Econ Impact	$ 64,809,383

More than 64 million dollars of the county's economy was a direct result of spending by Johnson County Community College, its students, and employees.

This total spending was recycled through the county's economy in several rounds of spending. This multiplier effect produces:

* Total Tangible Economic Impact	$129,618,766

In other words, a business volume of nearly 130 million dollars was generated in Johnson County by the expenditures of Johnson County Community College, its students, and employees.

These findings are also shown in Figure 2.

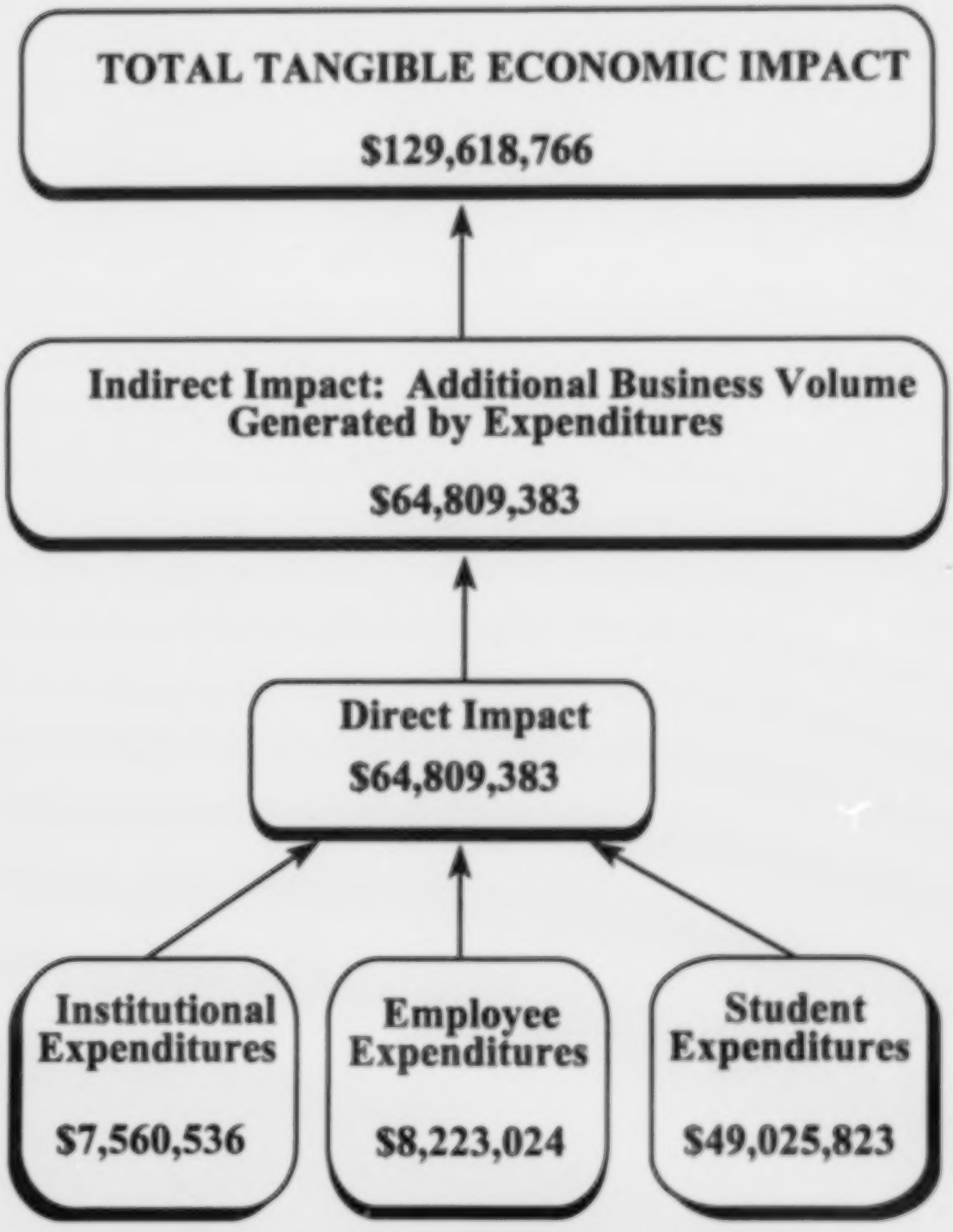

Figure 2. Total Tangible Economic Impact of JCCC on Johnson County

Full-Time Jobs Related to Johnson County Community College

In addition to the business volume it generates, Johnson County Community College also contributes a significant number of full-time jobs to the Johnson County economy.

• Full-time Employees	735
• Full-time Jobs Related to JCCC	4,536
• Total Full-time Employment	5,271

Thus, Johnson County Community College and its associated business volume generated 5,271 full-time jobs in fiscal 1993-94.

Return on Taxpayer Investment

Johnson County Community College received $43,542,194 in state and local support in 1993-94. The ratio of Johnson County Community College's total tangible economic impact to taxpayer support is thus:

$129,618,766 / $43,542,194 = 2.98 to 1.0

In other words, for every dollar spent by taxpayers in support of Johnson County Community College, almost $3 was returned to the Johnson County economy.

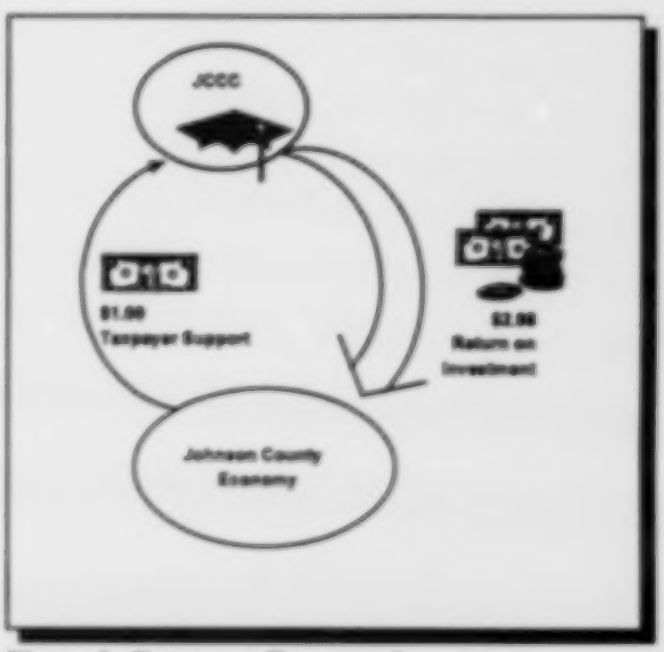

Figure 3. Return on Taxpayer Investment

Summary

This report has presented, in a simplified fashion, the results and methodology of the study of the economic impact of Johnson County Community College on Johnson County. Readers interested in greater detail regarding the methodology of the study, the actual data points and calculations used to derive the results, or in specific bibliographic references are referred to Appendices A and B which follow.

APPENDIX A

INTRODUCTION

The purpose of this Appendix is to provide additional detail, definitions, the actual data collected, and the calculation worksheet used to determine the economic impact of Johnson County Community College on Johnson County. It thus serves to elaborate and provide technical documentation of the economic impact study.

METHODOLOGY

The Economic Impact Model

The economic impact model used in this study was the short-cut model adapted by Ryan, after an exhaustive review of previous economic impact studies, and presented as a paper at the National Council for Resource Development. It is different from previous models in that it greatly reduces the complexity of the sub-models developed by Caffrey and Isaacs and simplifies the data collection process. Thus, it is well-suited for use in community colleges. Ryan has also demonstrated that results derived using this simplified model are comparable to those derived using the more generic Caffrey and Isaacs model (the acknowledged parent of economic impact models for institutions of higher education) and its various adaptations.

The simplification of more complex models that characterizes the Ryan short-cut model used in this study is accomplished by using existing data from federal, state, and local sources to substitute for surveys of college employees and students and to replace the extremely complex "retail gravity model" that is commonly used to estimate the percentage of expenditures made by employees or students in a specified geographic area.

For instance, rather than surveying JCCC employees to determine how many rented their residences, how much they spent on non-housing items, and how much they spent on non-housing items in the county of their residence, existing data sources were used. Average annual Johnson county area rent was obtained from the County Economic Research Institute (CERI). The percentage of employees who rented was assumed to be the same as the county average, and this average was also available from CERI. The percentage of disposable income that employees spent on non-housing items was also assumed to be representative of the metropolitan area and was obtained from Sales Management Survey of Buying Power.

Other examples and explanations of the data used in this study are contained in the following section on "Definitions." In addition, the completed data survey form and economic impact worksheet used to collect the relevant data and calculate Johnson County Community College's economic impact are included as Appendix B.

Definitions

The following are explanations of the general components of the model:

Direct Expenditures of the Institution: This included all of the expenditures the institution made to businesses and other contractors for such items as supplies, utilities, materials, equipment, building projects, services and numerous other items, excluding payments made to employees and for taxes. The location of these expenditures was determined by the address of each vendor.

Direct Expenditures of Employees: This component of the model was determined by calculating the total disposable income of employees by summing all payments made by the institution to them, excluding taxes withheld and mandatory retirement deductions. Then, the percentage of this total disposable income employees spent on non-housing items in Johnson County was calculated for those who were residents of Johnson County. To this was added the county area expenditures of non-resident, full-time employees of the institution--estimated at a very conservative constant of $1,000 per year. Finally, the housing rental expenditures of resident, full-time employees were calculated and added to the total.

Payments by full-time employees for home mortgages and related interest and taxes were considered investments and not included in the calculations of employees' expenditures. Also, expenditures of part-time employees who were not residents of Johnson County were excluded from the figure and only a token amount was included for the expenditures of non-resident, full-time employees. As a result, this calculation provided a very conservative estimate of the expenditures of employees, and only considered those that were derived from salaries actually paid by the institution.

Direct Expenditures of Students: Student expenditures were estimated for only those activities related to their attendance at the institution, excluding payments made for tuition and fees.

For full-time students (enrolled in 12 credit hours or more) these expenditures included those for books, education-related supplies, transportation and a living allowance for room and board. Rather than depending upon surveys of students to determine average expenditure for these items, the federal financial aid guidelines were used. For full-time students under the age of 25 (75.4% of total full-time students), the federal financial aid guidelines for a full-time student living at home as a dependent of his or her parents was used. For those full-time students 25 years of age or older, the federal financial aid guidelines for a full-time student living in an apartment were used. These guidelines are developed and approved for each institution disbursing federal financial aid monies.

For part-time students (enrolled in less than 12 credit hours), only those costs for books, education-related supplies and transportation to and from classes were included as education-related expenditures.

Full-Time Jobs Related to Institutional Spending

Johnson County Community College directly employed 735 individuals in full-time positions during fiscal 1993-94. In addition to these jobs, direct institution-related expenditures, and the additional indirect business volume generated by those expenditures in the economy created additional employment. As the institution and its employees and students purchase goods and services in the county, this increased economic activity in effect creates and supports additional jobs. Economists estimate that .00007 full-time jobs are created for each dollar added directly to an economy (Caffrey & Isaacs, 1971). Spending related to Johnson County Community College, then generated an additional 4,536 full-time jobs in the Johnson County area.

The total number of full-time jobs in the Johnson County area that can be attributed to Johnson County Community College is the sum of the actual number of full-time positions and the number generated by expenditures of the institution, its employees, and its students. Thus, Johnson County Community College generated 5,271 full-time jobs in Johnson County in 1993-94.

APPENDIX B

ECONOMIC IMPACT CALCULATION FORM

ITEM	INSTRUCTIONS
A. Total college expenditures $30,390,530	A. The source of information should be the end of fiscal year 1994 audit. This figure must exclude salaries, internal items and transfers and taxes.
B. Percentage of college expenditures, as reported in #A, spent in county 24.4%	B. The source of this information is college business records. It may be computed as follows: (1) Actual calculation of all in-county purchases for a fiscal year. (2) Review three different months' total expenditures. Determine percentage spent in county.
C. Total Student Activity fees, expenditures $595,273	C. The source of this information should be the Student Activities office. The total should include intercollegiate athletic expenditures.
D. Total number of college employees 4a. Full-time 735 27% 4b. Part-time 1,989 73% 4c. Total 2,724 100%	D. This information may be obtained from calendar year payroll records. (Use W-2 information or budget data.)
E. Full-time and part-time college employees who live in county 84.3%	E. This information may be obtained by reviewing address information on payroll or in college directory. If part-time data is not readily available, use full-time percentage.

Items	Instructions
F. Total disposable income available to college employees $23,855,138	F. The source of this information is college business records. The figure is money paid directly to staff and does not include taxes and cost of employee benefits.
G. Total number of full-time students 4,923	G. This information is available from end of fiscal year audit.
H. Total number of part-time students 10,430	H. This information is available from end of fiscal year audit.
I. Average annual college related expenditures by full-time students $27,873,783	I. This information is available from the Financial Aid office. The figure should exclude tuition and fees. The total expenditures are based on students under 25 years of age calculated as a dependent living at home while expenditures for students 25 years of age and over are calculated as living in an apartment.
J. Average annual college related expenditures by part-time students $2,028	J. This information is available from the Financial Aid office. The figure should exclude tuition and fees. The figure is based on expenditures for books, supplies and transportation only.
K. Total Student Government expenditures spent in county $145,247	K. This figure may be found by applying percentage computed in #B to total reported in #C.
L. College expenditures spent in county $7,415,289	L. This figure may be found by applying percentage computed in #B to total reported in #A.

Items	Instructions
M. Total in-county expenditures by the college $7,560,536	M. This figure may be computed by adding #K and #L
N. Disposable income of in-county employees spent in-county on non-housing items $7,126,801	N. This figure may be obtained as follows: Disposable income #F X Percentage of in-county staff #E X Percentage of non-housing expenditures from annual study that reports composite cost of living: groceries, housing, utilities, transportation, health care and miscellaneous goods and services X Percentage of in-county expenditures from Sales Survey of Buying Power magazine which reports "Population, Retail Sales, Effective Buying Income" by county spent and by county of residence.
O. Expenditures of out-of-county full-time employees spent in-county on non-housing items $124,000	O. This figure may be obtained as follows: Total number of out-of-county full-time employees X $1,000
P. Rental expenditures by full-time college staff living in county $972,223	P. This figure may be computed as follows: Total full-time staff living in county X County percentage who rent from local County Planning Department. If several statistics are available, choose the lowest. X County mean annual rent from annual

Items	Instructions
	study of monthly rent of an apartment for a middle management executive.
Q. Total employee expenditures in county $8,223,024	Q. The total in-county employee expenditures may be computed as follows: #N + #O + #P
R. Total expenditures by full-time students $27,873,783	R. This figure is computed by the following method: #G X #I
S. Total expenditures by part-time students $21,152,040	S. This figure is computed by the following method: #H X #J
T. Total expenditures by students $49,025,823	T. This figure is computed by adding #S and #T.
U. Total in-county expenditures by college $7,560,536	U. #M
V. Total employee expenditures in county $8,223,024	V. #Q
W. total student expenditures in-county $49,025,823	W. #T
X. Total initial economic impact of the college on the county $64,809,383	X. #U + #V + #W
Y. Multiplier effect	Y. 2.0
Z. Total estimated economic impact $129,618,766	Z. #X X #Y

	Items		Instructions
AA.	Full-time jobs related to JCCC in Johnson County 4,536	AA.	#X X .00007
AB.	Total full-time employment related to JCCC in Johnson County 5,271	AB.	#AA + #D4a
AC.	Total taxpayer investment (total state and local taxes received) $43,542,194	AC.	Available from institutional records
AD.	Return on taxpayer investment $2.98	AD.	#Z / #AC

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